

Floods, Landslides & Earthquakes in BoP

By Shawn Hollister, Communications Advisor

As the July 2004 school holidays came to an end, residents of the Bay of Plenty were subjected to a powerful weather event, resulting in floods and landslides, which were further intensified by a series of earthquakes. The combination of these events caused widespread damage in the region.

A Stalled Weather System

The region's weather conditions became extreme when a large high-pressure system, which had been creating cold weather for much of the country, moved to the east of the Chatham Islands and stopped. A frontal rain band shifted onto the North Island from the Tasman Sea and was blocked by the high-pressure system, causing it to stall. The result of the stalled system was intense rainfall throughout the Bay of Plenty.

Civil Defence Declarations

On Saturday 17 July 2004 at approximately 17:00, Opotiki District Civil Defence declared a state of civil defence emergency for the Waitaki Ward. Later that evening, Whakatane District Civil Defence declared for the Whakatane urban area at 21:47. The Environment Bay of Plenty regional council consulted with the affected districts and decided not to make a regional declaration.



Landslides in Ohiwa Bay caused significant damage to homes and infrastructure



Floodwaters covered an estimated 17,000 hectares of farmland on the Rangitaiki Plains.

Floodwaters Throughout the Region

A breach in the eastern stopbank on the Rangitaiki River above Edgecumbe resulted in an estimated 17,000 hectares of farmland being flooded. Some farms reporting water over 7m deep on their properties. The rushing waters of the Rangitaiki River carried enough force to totally sweep away a part of State Highway 2 and sections of a railway bridge on Hydro Road in Whakatane. At its peak on Sunday 18 July, the river was measured at 5.38m above the level of normal flow. The breach to the stopbank was 100m wide and around 5m deep and repair work required more than 16,000 tonnes of gravel.

Environment Bay of Plenty reported that the Whakatane River peaked early on the morning of Sunday 18 July, and was measured at a height of around 7.7m. Environment Bay of Plenty staff were concerned about an overtopping of the stopbank at the eastern end of the Central Business District of Whakatane, and quickly acted to sandbag a 100m stretch of low stopbank up to 1m high.

Earthquake Swarms & Landslides

The situation intensified as a swarm of earthquakes occurred throughout the region. By Sunday 19 July, more than 100 shallow earthquakes had occurred northeast of Rotorua. The largest, a magnitude 5.4 on the Richter scale, centred 20km northwest of Kawerau, was widely felt. Seismologist Ken Gledhill of Geological

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July floods test us once again

On Saturday 17 July flooding in the Eastern Bay of Plenty once again tested the CDEM arrangements in our communities - this time in the districts of Whakatane and Opotiki. I note on this occasion, the event was managed under the old 1983 Civil Defence Act. The scale of this event was significantly less than the February 04 floods (\$10's of millions damage, rather than \$100's of millions) but was never-the-less substantial. The event was again largely rural in character but with significant urban impacts at Edgecumbe and the Awatapu suburb of Whakatane. There were also impacts on coastal residential properties.

Coming just five months after the February floods, support arrangements were quickly put in place and it was evident that many of the agencies involved had taken on the lessons from February. However a number of issues again came to the fore:

- The assessment of impacts again proved to be uncertain and time consuming, eg. 2000 hectares of inundation became 25 000 and then 12 000; 200 houses affected became 700.
- The importance of planning and agency relationships.
- The importance of supporting the volunteer effort.

A feature of this event was the establishment of a Recovery office and the appointment of a Recovery Facilitator on the Thursday following the Saturday storm so that the recovery activity was fully established by the time the declarations were lifted. While the event was managed under the 1983 Civil Defence Act provisions, the recovery office was managed as a combined office between Whakatane and Opotiki districts with support from Environment Bay of Plenty regional council. These arrangements thus begin to look like CDEM Group arrangements yet to come. I note the Recovery Facilitator was appointed into the Region - in future Group arrangements for the role of the Recovery Manager would be expected to be provided by the Group.

The event again served to raise river management issues and reinforced the focus on this from the February floods. It is possible the Government will be called to fund more than \$20 million worth of river repairs between these two events. There is Government interest in seeing that river management in New Zealand has an appropriate focus.

The week before this event saw the highly successful and stimulating Recovery Symposium in Napier, where the components of infrastructure, environmental, community, economic and psychosocial recovery were explored. These will be developed further over the coming months and in future events, recovery aspects of land use, community trauma, business recovery and risk reduction will have a clearer focus.

In late August, I visited South Taranaki District Council to support their proposals for land use management at Waitotara - a small community devastated by the February floods with unresolved issues of reconstruction, reinsurance, and relocation. Their stance on addressing this difficult issue is to be applauded.

Finally a word on hazard risk based planning. The hazard based principle of the NZ CDEM framework provides for planning and reduction measures to be informed by understanding the potential consequences of the hazard. It is therefore a necessary step in the Group Plan development that the definition of the hazard (eg: the 50 or 100 yr flow rates for rivers) is followed by an assessment of the scope and scale of the possible/likely impacts. It is this aspect, which requires a coordinated and practical input from all accountable agencies within the CDEM Group. Where this assessment is incomplete at the time of submitting the first Group Plan it will be expected that a defined work programme will be included in the Plan.

Following the past six months, we look forward to a warm and settled spring!

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Water Water Everywhere, and Not a Drop to Drink:

A Study into Health Protection Issues Relating to Flooding in Feilding, February 2004 Department of Public Health, Wellington School of Medicine & Health Sciences, University of Otago, June 2004

Flooding events pose a potentially serious health risk, particularly in regard to injuries and gastrointestinal diseases. Such risks can be minimised by the use of appropriate precautions being taken, such as boiling water or drinking only bottled water until adequate reticulated supplies are re-established. The provision of health information to residents thus has a vital role in ensuring the health and safety of those affected by flooding. Even so, the health and civil defence authorities involved with the flooding event in the Manawatu in February 2004 were unsure about the effectiveness of the health advice they distributed and how well it reached the affected residents.

This study aimed to examine the communication issues around health protection information, distributed by health and civil defence authorities to residents of the town of Feilding exposed to a flooding event in February 2004.

The study focused on health information sought and received by residents of Feilding who were not evacuated from their homes during February 2004. A telephone questionnaire was developed and conducted to assess the source, adequacy and content of health and safety information received before, during and after the floods; and what advice the residents followed during this time period.

A total of 154 residents were surveyed, this being 76% of those successfully contacted. Of the respondents, 79% recalled being provided with health and safety information, most of these believing the council to be the main provider of this. Successful modes of delivery included the radio (42%), pamphlets (23%), and newspapers (20%). Common advice recalled and followed was to boil (74%) and conserve (25%) water. People were generally satisfied with the level of information and its accessibility. Some respondents (17%) sought further information and the majority (88%) of these respondents found this easily.

Respondents were in general under-prepared for the flood (e.g. in terms of having appropriate emergency supplies). Following the flood, respondents were 2.5 times more likely to have bottled water stores, but other supplies (tinned food, radios and emergency medical kits) remained at similar levels. Perceived health concerns were low, despite many perceiving water contamination to be a significant threat. Actual self-reported health consequences from the flood were minimal over this period.

This investigation found that health and safety information was successfully distributed and was regarded as appropriate by the population of Feilding. Nevertheless, there was scope for improvement in disaster preparation by residents and in the use of certain health protection measures (such as boiling water for the recommended time period).

A copy of the complete report, including recommendations, can be viewed at www.civildefence.govt.nz, under February floods.

Disaster Reduction Week

11-17 October 2004

"Learning from yesterday's disasters for tomorrow's hazards"

That's the theme for this year's Disaster Reduction Week, focusing on learning and education.

In December of 1989, the General Assembly of the United Nations designated the second Wednesday of October to be International Day for Natural Disaster Reduction. The international day is seen as an instrument to endorse a global culture of natural disaster reduction and an opportunity to focus on disaster prevention, mitigation and preparedness.

In New Zealand a number of activities are planned for the week. As identified in the National Public Education Strategy, it was agreed that there is value in having a concerted series of awareness activities during the week with local and regional activities reinforced at a national level. An intensive national radio campaign around the "Know What it Takes To Survive" series will run during the week. A suggested series of local and regional radio promotional activities have also been added to the website with a list of radio stations that will be running the campaign.

In addition, there will be a series of targeted media releases nationally. Templates of articles which can be customised for local use and examples of community initiatives will also be promoted via the website. The Ministry will be communicating with council staff tasked with civil public education programmes on how they can maximise opportunities during the week. Any queries to chandrika.kumaran@dia.govt.nz

Natural Physical Hazards – funds awarded

By Jim Stuart-Black, Emergency Management Advisor

Civil Defence & Emergency Management activities need to be underpinned by clear evidence that reflects both best practice within New Zealand and internationally; evidence that is significantly enhanced through effective structured research. Goal 2, Objective A of the National CDEM Strategy seeks to "**Improve the coordination, promotion and accessibility of CDEM Research**". As part of the Ministry's commitment to this objective, we have been involved in the Natural Physical Hazards Research Portfolio developed and managed by the Foundation for Research Science and Technology (FRST).

The Ministry assisted with the development of the research portfolio (used as a guide for the tendering process) and then worked with the Reference Group charged with awarding funds at the end of the bidding process. As MCDEM assisted with the development of the overarching documentation, we were not involved in the actual decision-making and subsequent fund allocations. After a detailed consultation period, FRST announced the results of the portfolio and awarded a total of \$13.8m per annum across twelve programmes varying from two to six years in duration.

Further information is available on the Foundation's website www.frst.govt.nz



Landslides caused extensive damage to some properties.

and Nuclear Sciences Ltd reports that "swarms of small shallow earthquakes are reasonably common in the Bay of Plenty." However, "this swarm was slightly unusual in that the magnitudes of the largest earthquakes were bigger than normal. We see this type of swarm perhaps once every decade in the Bay of Plenty" says Dr Gledhill.

The combination of the intense rain, flooding and the ground shaking caused by the earthquake swarms, triggered landslides throughout the Bay of Plenty. The land slippage caused damage to a number of homes and created considerable disruption to infrastructure. Two homes in Bryan's Beach were destroyed, resulting in the death of one person. Another person was killed when a falling tree struck her vehicle.

Evacuations, Damaged Homes & Farms

At the height of the event, it was estimated that around 3,200 people were evacuated from their homes. The local community came together in support and displaced people were able to find shelter in evacuation centres and on local marae. Approximately 210 homes were flooded or affected by landslides and of these 188 are unsuitable for occupation in the short term.

The region's farming community was hit hard by the events. An estimated 450 farms were affected, with over 110 classified as severely damaged. Of the estimated 17,000 hectares of affected land, 8,000 hectares were badly flooded and an estimated 3,000 – 4,000 hectares will need re-grassing.

Central Government Assistance

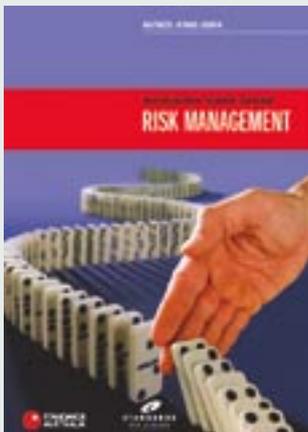
On 4 August 2004, Ministers approved an estimated \$30 million support package of measures to help with agricultural recovery, repairing schools, fixing roads and giving direct help to low income earners and people who had to be evacuated. The level of support from Central Government could increase as the cost of repair to infrastructure and response cost is determined.

The assistance will be directed at caring for the displaced, re-establishment grants for low-income earners, relief from tax interest and penalties, repairing infrastructure, and an agricultural recovery programme.



Transportation and infrastructure was affected by floodwaters and landslides.

THIRD EDITION OUT



The third edition of AS/NZS 4360: Risk Management is now available through Standards NZ (see www.standards.co.nz). This new version includes how to benefit from positive risk (opportunities) and embedding risk management within organisations.

Civil Defence TV docodrama in the works

Isola Productions, an Auckland-based television production company is developing a 2-hour docodrama on civil defence preparedness that is expected to air on TV One in early 2005. The programme is aimed at testing New Zealanders' awareness and preparedness for earthquakes, severe weather events and volcanic eruptions. The show will have a live studio format that incorporates docu-drama inserts, real events footage, and interviews with relevant agencies and members of the public. It is also being developed as an interactive show involving in-studio celebrities and special guests.

In collaboration with local and regional authority civil defence staff and the science community, the Ministry has been working with Isola Productions to provide input and advice on the civil defence aspects of the content. Updates on the programme can be viewed on the Ministry's website.

Recovery Symposium

By Sarah Norman, Emergency Management Planner

Held at the War Memorial Centre in Napier from 12 -13 July 2004, the Recovery Symposium played host to 290 delegates from a wide variety of professions, organisations and backgrounds, including representatives from New Zealand, Australia, the United Kingdom and the United States of America. Napier's Mayor Barbara Arnott provided the Symposium's opening, and Russell Fairbrother gave a welcome on behalf of New Zealand's central government. The two-day Symposium provided attendants with an opportunity to contribute to the development of a recovery framework. Participants took part in discussion and debate of the multifaceted aspects of recovery outlined in the draft document 'Focus on Recovery'.

The Earthquake Commission keynote address was presented by Professor James K. Mitchell from Rutgers University in the United States and provided delegates with insight into the 1976 earthquake in the city of Tangshan, China. Measuring a magnitude of 7.8 on the Richter scale, Tangshan was the deadliest recorded earthquake, taking the lives of over 250,000 people. Professor Mitchell outlined the long-term, complex and prolonged recovery issues still affecting many of the people involved in this disaster. The address drew comparisons between the Chinese and New Zealand contexts in terms of recovery planning and management.

While discussion was energetic and many opinions varied, participants established clear agreements in a number of key areas. A holistic approach that addresses the key components of recovery was endorsed. The components that were suggested at the Symposium (community, psychosocial, environmental, infrastructure and economic) have been consulted on and the submissions are currently



290 delegates from around the world took part in the Recovery Symposium



From left: John Norton, Director of the Ministry of Civil Defence & Emergency Management, Russell Fairbrother, Member of Parliament for Napier, and Christopher Blake, Chief Executive of the Department of Internal Affairs

being reviewed. The notion that individual and community well-being is at the centre of each of these components was widely supported. In this regard, there was a clear recognition of the importance of people, partnerships and politics throughout the recovery process.

Following the Symposium, the core areas of strategic level work will include the publication of the Symposium Proceedings, review of the document 'Focus on Recovery' and a new guideline on recovery practices within New Zealand.

Symposium guests were invited to take part in an Earthquake Tour on Sunday 11 July, which was an excellent opportunity to learn about one of New Zealand's most significant disasters. In addition to the tour, guests were invited to attend a social function at the Napier War Memorial Conference Centre. One hundred and fifty of the event's delegates attended the Symposium dinner at the Mission Estate. While dining on fine wines and cuisine, attendees were entertained by 'Buckwheat' (as Master/Mistress of Ceremonies). The dinner speaker was Gaylene Preston, acclaimed New Zealand director of *Survivors' Stories*, *Perfect Strangers*, *Mr Wrong*, *Ruby and Rata*, *Bread & Roses* and *War Stories: Our Mothers Never Told Us*.

If you were unable to attend the Symposium but would like to order copies of the Recovery Symposium Proceedings, an order form may be downloaded from www.civildefence.govt.nz or by contacting sarah.norman@dia.govt.nz.

"Faces of the Community" After a Disaster



As part of the Recovery Symposium and to increase awareness of recovery, the Ministry of Civil Defence & Emergency Management ran an artwork competition for New Zealand secondary school students aged 15-19. Artists were given the opportunity to express their understanding of what recovery from a disaster means for New Zealanders.

The winner, Amy Highfield, a 17-year old student from Te Puke High School, received a \$500.00 cash prize, and her artwork was displayed at the Recovery Symposium. When the Symposium was completed, the work was moved to the National Crisis Management Centre, located in the Beehive in Wellington.

"I was really shocked because I didn't expect to win. I thought they were calling up for some other reason."

The work portrays "the faces of the community inside a jigsaw puzzle to show how people are torn apart ... and how they pull together to help rebuild and put the pieces back together." Amy's work makes good use of the symbol of a koru to signify the "new life of the environment."

CDEM Volunteering – situation report

By Sara Williams, Project Coordinator

The Ministry of Civil Defence & Emergency Management is committed to encouraging the use of best practice management for volunteers and supporting the Civil Defence Emergency Management (CDEM) sector in achieving this.

To this end the Ministry has developed a number of CDEM volunteering resources. The most recent addition is the *CDEM Volunteering Situation Report July 2004*, which reviews the current situation and issues in the CDEM volunteering sector. Based on conversations undertaken with 19 councils in late 2003, the report also incorporates New Zealand and international research in the area of emergency volunteering.

The report investigates the use of CDEM volunteers in New Zealand and their likely future role. The report concludes that CDEM volunteering has a critical role to play in the safety and well-being of New Zealand communities. However, there are a number of issues currently affecting the ability of the sector to deliver to the level that the community expects. Among the identified issues are funding, training, legal concerns, recruitment, retention and perhaps most critically, recognition. For CDEM volunteering to remain viable in NZ, these issues must be addressed.

Over the coming year, the Ministry will be providing more support to the sector as they focus on CDEM volunteering issues. Additional

resources will help to supplement previously developed resources, such as the document 'Managing Volunteers'. Information on how CDEM volunteers are affected by the Civil Defence Emergency Management Act 2002 and the Health and Safety in Employment Amendment Act 2002 will also provide assistance.

Key items in the 2004/05 work programme include:

- Co-funding of participants to attend the Australian Emergency Management Volunteers Summit 2005 (conditions for co-funding and the application process will be announced in October 2004)
- Development of national level volunteer recognition certificates
- Development of volunteer management guidelines and training packages specifically for CDEM, in conjunction with local and regional government. Development will incorporate best-practice examples and successes and will include information on how to manage CDEM volunteers in the new environment. It is intended that the training package will be offered through the RAPID programme (www.rapid.org.nz)

If you have any enquiries about these work areas or the Ministry's involvement in the area of CDEM volunteering in general please contact Sara Williams on 04 495 6816 or email sara.williams@dia.govt.nz.

CDEM SECTOR EVENTS

2004 North Island Civil Defence Emergency Management Conference,

By Jane Lodge, Auckland City Council

17-18 November 2004 Sky City Convention Centre Federal Street, Auckland

Keynote speakers include:

- John Norton, Director of the Ministry of Civil Defence & Emergency Management
- Peter O'Neill, former manager, NSW State Emergency Services
- Professor Bill Hodge, Auckland University Law School
- Sam Mulholland, Standby Computing Services.

Both days of the conference will commence with plenary sessions, the first from our keynote speaker, Peter O'Neill, former manager, NSW SES, and will be entitled "Encouraging Community Resilience - a model for community engagement". The second day's plenary session will deal with IT issues / opportunities in CDEM, followed by presentations around declaring an emergency.

Both afternoons will feature themed, tandem workshops on:

- Testing & Exercising
- Emergencies and the Media
- Community resilience - the role of other stakeholder groups
- Plotting your career path - CDEM practitioners
- Response/Recovery issues from recent floods

Presenters will be varied and will cover a wide range of topics. We are also mindful that attendees will want to participate and have incorporated as many opportunities as possible for attendees to discuss, network, etc. Our guest speaker at the formal dinner is Professor Bill Hodge. Bill lectures at Auckland University's Law Faculty and recently gave a very successful workshop at the Auckland region Senior Manager's workshop.

2004 South Island CDO Conference - Coastal and Marine Emergency Management,

By Bill Obers, Invercargill City Council

The 2004 South Island CDO Conference themed 'Coastal and Marine Emergency Management' will be held at the Ascot Park Hotel complex on 27 – 29 October in Invercargill.

The programme will include a range of presentations including:

- Coastal hazards
- CDEM / Rural Fire interface
- Tsunami activity
- Coastguard
- Community responses to emergency events
- Small community resilience
- Lessons learnt from North Island floods

A segment of time will be dedicated to a forum/discussion/workshop for items of interest that are raised during the Conference.

The Conference dinner will be held on Wednesday night, following a visit to a unique site. The field trip goes to the NZAS Smelter at Tiwai Point, where we will review risk identification & emergency procedures, relationships with Emergency Services, staff and community welfare. We will also be taken on a tour of the site. In the afternoon, weather permitting, we will travel to Stewart Island and review how the small, isolated community became 'resilient' and relates to 'emergency management', as well as the historical Tsunami events in the south. A partner's programme has also been prepared for days 1 and 3 and partners will travel with the delegates on day 2. We have provided a full programme and are awaiting confirmation from all South Island CDO's wishing to attend.

Natural Hazards Management Conference, August 2004

By Sara Williams, Project Coordinator

The Ministry of Civil Defence & Emergency Management was proud to be involved in the development and sponsorship of the 6th New Zealand Natural Hazards Management Conference. Other sponsors included Earthquake Commission; Environment Bay of Plenty; Institute of Geological & Nuclear Sciences (GNS); National Institute of Water & Atmospheric Research (NIWA); Tauranga City Council; Wellington City Council Emergency Management Office; and Western Bay of Plenty Regional Council.

The conference, held 10 – 11 August 2004 in Tauranga, was designed to provide a forum to discuss the integration of hazard information into effective risk management. This included:

- Applying hazard information to best practice planning
- Exploring new technologies and advances in science application
- Natural hazard mitigation for industry
- Creating resilient communities through integrating science into practice.

The target audiences for the conference were emergency managers, planners, risk assessors, utility managers, natural hazards researchers and scientists. Coastal care, erosion mitigation, response and recovery from the February 2004 Flood, and CDEM Group development were some of the topics of focus.

The conference's two keynote presenters were Dr Linda Anderson-Berry, Head of Disaster Mitigation & Planning, Bureau of Meteorology, Australia; and Professor Dennis Mileti, Director Emeritus of the Natural Hazards Research and Applications Information Centre, Boulder, Colorado, USA. In his closing, Professor Mileti declared New Zealand to be a showcase nation of goal driven communities seeking resilience to natural hazard risk.

The conference concluded with two field trips; one focused on Volcano and Geothermal and the other Coastal and Flood Plains. The latter trip witnessed successful coastal hazard mitigation, but also observed the impacts of the Eastern Bay of Plenty storms and earthquakes of July 2004. Environment Bay of Plenty staff generously gave valuable first-hand accounts of these events, even while amidst the recovery process.

The Ministry provided support for the conference through staff involvement in planning and presenting at the conference, as well as the sponsorship of four postgraduate students to attend the conference. The students were, Tariq Rahiman (University of Canterbury), Darren Hitchcock (University of Canterbury), Kylie Berg (Victoria University) and Jonathan Procter (Massey University). All the sponsored students are studying or researching natural hazards, and benefitted greatly from attending the conference and being able to meet other students and researchers in their areas of study.



From the left: Kylie Berg, Darryn Hitchcock, Jonathan Procter, Tariq Rahiman, and Sara Williams

R.E.S.T. Report (NZ-RT4)

By Graeme McIntyre, Emergency Services Officer, Palmerston North City Council

Over the past few years the Emergency Services section of Palmerston North City Council has been upgrading and fine tuning their activities and capabilities within the emergency arena.

One of these projects has been to take the Palmerston North Rescue Emergency Support Team (R.E.S.T) and upskill the team members so that they can be used for all types of emergencies within the community.

Achieving this goal has involved 2.5 years of extra training that has required the support and assistance of Council staff, the Ministry of Civil Defence & Emergency Management (MCDEM), the New Zealand Fire Service (NZFS), New Zealand Urban Search and Rescue (USAR), NZ Task Force 1, Red Cross, Horizons Regional Council and many other groups and individuals.

As a result, R.E.S.T members have to date achieved many national and international standards in: Technical rope work; Swift water rescue; Pre-hospital emergency care; Civil Defence general rescue; Welfare; Rescue triage, Working with aircraft; Urban search and rescue/general rescue (USAR); Radio communications; Critical incident stress; Coordinated Incident Management Systems.

R.E.S.T members are volunteers that have given hundreds of hours over the past 2.5 years, and their goal has been the team's accreditation to the New Zealand USAR organisation. On 7 May 2004, this became a reality. The national USAR steering committee audited all aspects of R.E.S.T, from their practical skills to their paper work.

The result was that Palmerston North R.E.S.T became accredited as NZ – RT4.

This accreditation and registration now allows R.E.S.T to be used in all aspects of rescue throughout New Zealand and in the event of a major event, they can be assigned to support USAR task forces.

The time and commitment from the team's volunteers has, at times, been hard on their friends and families. The Council should be proud of these members and their families for all their dedication and support. In all, Palmerston North should be proud of this team and their achievements of being within the first four nationally registered rescue teams in New Zealand, a great achievement for a small city.



From the left: Shane Briggs (team manager), Nathan Field, Donna Field, Chris Schraders, Liz Smith, John Ormsby, Sonia Hurley, Simon McKenzie, Brian Donaldson, and Graeme McIntyre

Raising Awareness and Preparedness

Recovering from the floods in the Manawatu

By Jacqui Ferrel, Communications Coordinator, Horizons Regional Council

A new house, pastures re-sowed, writing a book, and a family holiday, have all gone a long way to alleviate the trauma of the flood experience dished out to Keith and Kim Riley and their three children in February this year.

Farming land on the eastern mouth of the Manawatu Gorge near Woodville, Kim Riley was thrown into the media spotlight when she was saved from the floodwaters by a passing cow, which was also swimming for its life. Her experience so captured the imagination of New Zealanders that publishers Random House invited her to write a children's book. It will be released in October. "It has been a wonderful therapy project", she says. Clinging to the cow's neck, the pair managed to get to a grassy bank protruding above the water. Kim had been in the water half an hour in darkness, still totally clothed in wet weather gear, which kept dragging her under. "I kept trying to get my coat off but the pockets were full of water".

Telling their tale of the flood, six months down the track, the drama is still very real.

"We rose at 4.30 as usual to go and milk". They found their cows knee deep in floodwater, which was rising rapidly. "It was like a bath running!" says Kim. After splitting up to help the frightened livestock, Kim found herself wrenched off her feet and floating along with the whole cowherd. It was still dark and she could feel herself ripped over fences (1.4 metres high). Kim realised she was being washed into the Mangatua Stream and was moving towards the Manawatu River and into the gorge. "I knew that if I got into the river, I was gone". Just as she was beginning to think she would drown, she felt the large body of a cow beside her and she clung to its neck for dear life. "The rest is history, we made it to the grassy knoll together".



Keith and Kim Riley

Children's understanding of natural hazards in Christchurch

By David Johnston, GNS



Sara's award winning project, entitled "Shock Horror".

Measuring the level of understanding of natural hazards amongst her classmates was an award-winning topic for 11-year-old Sarah Standing of Christchurch.

At last year's Canterbury/Westland Science and Technology Fair, Sarah won the prize for "the best exhibit demonstrating an investigation of medical sciences" sponsored by the International Association for Medical Assistance to Travellers (IAMAT).

Sarah surveyed her classmates and other students at Cobham Intermediate about their knowledge of hazards. With the help of the Institute of Geological & Nuclear Sciences and Massey University, she was able to compare her results with those from studies undertaken in Auckland, Taupo and Washington (USA).

Results showed that the Christchurch students had good awareness of the types of hazards that could affect them and many had made preparations at home. The study supported the need for continuing hazards education to increase understanding of the types of future impacts the community could face and improved preparation at school and home.